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# A New Species of Freshwater Sculpin, *Cottus koreanus* (Pisces: Cottidae) from Korea

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A species of freshwater sculpin, Japanese name "Kibire-kajika", inhabits some rivers of the Korean Peninsula. Although this species has been recorded under the name *Cottus poecilopus* Heckel, 1840 or the incorrect subsequent spelling *C. poecilopterus*, it is shown by comparison with the type specimens to differ from both subspecies of *C. poecilopus* (*C. p. poecilopus* Heckel, 1840 and *C. p. volki* Taranetz, 1933). Moreover, it is distinguished from all other members of the genus *Cottus* by the following combination of characters: lacking palatine teeth, pectoral fin rays not branched even in adults, lateral line complete, terminal pores of mandibular sensory canals opening separately on either side of symphysis, body almost naked, back and sides lacking dark vermiculations, pelvic fin with bands or white roundish marks bordered with a blackish line, innermost ray of pelvic fin longer than 60% of length of longest ray, second dorsal fin rays numbering 18–21, anal fin rays 14–17, pectoral fin rays 12–13, and vertebral number 34–36. We describe this species here as a new species, *Cottus koreanus*, on the basis of 28 specimens collected from several rivers in Korea.
**Key Words:** Cottidae, new species, *Cottus koreanus*, Korea.

## Introduction

The freshwater cottid genus *Cottus* is characterized by branchiostegal membranes adhering to the isthmus without making a fold over the latter, a smooth dorsal surface of the head without bony ridges or processes, the uppermost preopercular spine being simple and curved upward, and the pelvic fin usually having one spine and four soft rays. This genus is extremely diversified and contains 41 species including six subspecies in the Northern Hemisphere (Berg 1949; Lee *et al.* 1980; Page and Burr 1991; Kim and Youn 1992; Nakabo 1993; Kottelat 1997; Kinziger *et al.* 2000). In the Korean Peninsula, three species of the genus *Cottus* have been recorded; *C. czerskii* Berg, 1913, *C. poecilopus* Heckel, 1840 (or its incorrect subsequent spelling *C. poecilopterus*) and *C. hangiongensis* Mori, 1930 (Mori 1928, 1930, 1952; Matsubara 1955; Chyung 1977; Choi *et al.* 1990; Kim and Youn 1992). Among

them, *C. poecilopus* is widely found in eastern Eurasia. Taranetz (1937) recognized two subspecies, *C. p. poecilopus* Heckel, 1840 and *C. p. volki* Taranetz, 1933 in *C. poecilopus*. Recently, we had the opportunity to compare the Korean freshwater sculpin, so-called *C. poecilopus*, with the type specimens of the two subspecies of *C. poecilopus*, and found clear differences. Furthermore, the Korean form is distinguished not only from any other species of *Cottus* found in Far-east Asia, but also from European and North American species. The Korean freshwater sculpin, therefore, is described as a new species below.

The methods of counts and measurements mainly follow Hubbs and Lagler (1958), except for the following: body depth was measured between the origins of the first dorsal and pelvic fins; all fin ray elements of the dorsal and anal fins were counted; vertebrae were counted from the first vertebra to the urostylar vertebra with a hypural bone. In addition, lengths of the longest and the innermost rays of the pelvic fin were measured. Gill rakers were counted on the outer and inner sides of the first gill arch. Caudal fin rays and vertebrae were observed and counted from radiographs. Measurements were made to the nearest 0.1 mm. Standard length is expressed throughout as SL. Institutional abbreviations follow Eschmeyer *et al.* (1998).

## Taxonomy

***Cottus koreanus*** sp. nov.
[Korean name, Dug-jung-gae; Japanese name, Kibire-kajika]
(Figs 1–3)

*Cottus poecilopus* (not Heckel, 1840): Berg 1905: 78–92 (in part); Mori 1928: 19 (listed); Berg 1932: 17 (in part); Kim and Youn 1992: 60, pl. 1A; Byeon *et al.* 1995: 128–134.
*Cottus poecilopterus* [sic]: Mori and Uchida 1934: 18 (listed); Okada 1938: 228 (listed); Mori 1952: 161 (listed); Matsubara 1955: 1147 (key); Chyung 1977: 530; Jeon 1987: 557–563, pl. 4 (key); Choi *et al.* 1990: 172–173.
*Cottus poecilopus poecilopus* (not Heckel, 1840): Taranetz 1937: 111 (key, in part).
*Cottus poecilopus volki* (not Taranetz, 1933): Berg 1949: 1144–1145 (in part).
*Cottus minutus* (not Pallas, 1769): Gratzianow 1907: 657–658 (in part).

**Type series.** *Holotype.* HUMZ 155725, male, 83.5 mm SL, a stream at Mt. Chiak, Namhan River system, Hackkok-ri, Socho-myon, Wonju-gun, Kangwon-do, Korea, 28 September 1998, collected by R. Fujii and Y. Choi. *Paratypes.* Twenty specimens: HUMZ 155722, 155726–155739, 7 females and 8 sex unknown, 36.3–66.7 mm SL, same locality as holotype, 26 September 1998; HUMZ 155764, female, 85.4 mm SL, collected with holotype; NSMT-P 60690–60691, female and sex unknown, 41.4–65.9 mm SL, collected with holotype; CNUC 25009–25010, 2 females, 57.4–58.0 mm SL, collected with holotype.

**Non-type materials.** Seven specimens: HUMZ 77467–77468, 77470–77471, 2 males, female, and sex unknown, 49.9–101.8 mm SL, upper reaches of the Han River, Kwangwon-ri, Nae-myon, Hongchon-gun, Kangwon-do, Korea, 17 June 1978; HUMZ 150805, sex unknown, 51.7 mm SL, Haean-myon, Inje-gun, Kangwon-do, Korea, 31 May 1992; CAS 129532 (n=2), 2 males, 70.3–71.3 mm SL, Wonsan, Korea, 30

Fig. 1. Lateral view of *Cottus koreanus* sp. nov., holotype, HUMZ 155725, male, 83.5 mm SL.



Fig. 2. Photograph of *Cottus koreanus* sp. nov., holotype, HUMZ 155725, male, 83.5 mm SL.

Table 1. Proportional measurements for *Cottus koreanus* sp. nov.

| | Holotype | Paratypes (n=20) | | Non-types (n=7) | |
|---|---|---|---|---|---|
| Standard length (mm) | 83.5 | 36.3–85.4 | (mean 53.8) | 49.9–101.8 | (mean 73.1) |
| In % of standard length | | | | | |
| Body depth | 20.7 | 18.1–23.5 | (19.7) | 16.4–22.4 | (20.1) |
| Predorsal length | 34.3 | 31.5–34.9 | (33.0) | 31.1–35.0 | (33.1) |
| Preanal length | 52.5 | 52.9–56.0 | (54.3) | 52.5–58.0 | (54.7) |
| Snout to pelvic origin | 26.3 | 25.9–30.0 | (27.5) | 25.6–30.0 | (27.1) |
| Caudal peduncle length | 14.6 | 14.2–17.0 | (15.5) | 14.2–18.3 | (16.9) |
| Caudal peduncle depth | 10.4 | 9.4–10.9 | (10.1) | 8.2–9.2 | (8.7) |
| Head length | 31.3 | 28.0–31.8 | (30.4) | 29.2–31.3 | (30.3) |
| Snout length | 9.2 | 7.7–9.5 | (8.3) | 7.9–9.1 | (8.6) |
| Orbital diameter | 7.5 | 7.7–9.4 | (8.5) | 7.3–8.8 | (7.9) |
| Upper jaw length | 14.9 | 10.5–13.6 | (11.7) | 11.0–15.2 | (12.8) |
| Lower jaw length | 12.8 | 8.8–11.4 | (9.9) | 9.1–12.5 | (10.4) |
| Postorbital head length | 16.4 | 14.3–16.7 | (15.7) | 14.5–17.5 | (15.6) |
| Inter-orbital width | 1.4 | 1.1–3.9 | (1.8) | 1.2–2.6 | (1.8) |
| Basal length of 1st dorsal fin | 19.8 | 17.2–19.9 | (18.8) | 19.4–24.1 | (21.1) |
| Basal length of 2nd dorsal fin | 45.4 | 39.5–46.3 | (43.8) | 39.5–42.0 | (41.0) |
| Basal length of anal fin | 34.4 | 26.7–35.5 | (33.6) | 17.3–31.9 | (30.5) |
| Pectoral fin length | 32.7 | 26.6–30.2 | (28.2) | 25.7–31.9 | (28.3) |
| Pelvic fin length | 29.0 | 19.3–22.3 | (20.5) | 20.1–35.1 | (28.0) |

May 1911.

**Diagnosis.** A species of the *Cottus* with the following combination of features: palatine teeth absent, all fin rays of pectoral fin unbranched, lateral line completely extending to caudal fin base, terminal pores of mandibular sensory canal opening separately on either side of symphysis, body almost naked and without dark vermiculations dorsolaterally, pelvic fin with dark bands or white roundish marks bordered with a blackish line, innermost ray of pelvic fin longest or its length more than 60% that of longest ray, second dorsal fin rays numbering 18–21, anal fin rays 14–17, pectoral fin rays 12–13, and vertebral number 34–36.

**Description.** Proportional measurements are shown in Table 1 and meristic counts in Table 2.

Body elongated, slightly compressed, body depth 20.7% of SL in holotype (16.4–23.5% in paratypes and non-types). Caudal peduncle stout, compressed, its depth 71.3% (46.4–69.8%) of its length. Head small, depressed, length 31.3% (28.0–31.8%) of SL. Snout slightly rounded. Mouth terminal; maxilla extending to point below middle of pupil. Lower jaw shorter than upper jaw. Each pore of mandibular sensory series with single opening. Villiform teeth in bands on jaws and prevomer; none on palatines. Eye rather small, orbit diameter 81.8% (79.6–120.7%) of snout length. Interorbital space narrow, slightly concave, its width 19.0% (12.5–45.9%) of orbital diameter. A single preopercular spine, simple, sharp, slightly curved upward, hidden under skin, its length 6.9% (3.9–10.2%) of head length (one or two spines under uppermost spine in specimens of less than *ca* 70 mm SL). Branchiostegal membranes of both sides broadly adhering to isthmus, but with no fold closing over isthmus. Body almost naked except for dense prickles

Table 2. Meristic counts for *Cottus koreanus* sp. nov., *C. hangiongensis*, *C. poecilopus poecilopus*, *C. p. volki*, and *C. czerskii*.

| | First dorsal spines | | | | | | | Second dorsal rays | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | 6 | 7 | 8 | 9 | 10 | mean | N | 16 | 17 | 18 | 19 | 20 | 21 | 22 | mean |
| *C. koreanus* (types) | 21 | 1 | 3 | 16* | 1 | | 7.4 | 21 | | | | 3 | 10 | 8* | | 20.2 |
| *C. koreanus* (non-types) | 7 | | | 7 | | | 8.0 | 7 | | | 3 | 2 | 2 | | | 18.9 |
| *C. hangiongensis* | 32 | | | 3 | 28 | 1 | 8.9 | 28 | | | | 1 | 6 | 16 | 9 | 21.0 |
| *C. poecilopus poecilopus* | 21 | | 1 | 13 | 7 | | 8.3 | 21 | 1 | 9 | 4 | 6 | 1 | | | 17.9 |
| *C. p. volki* | 14 | | | 11 | 3 | | 8.2 | 14 | | | 1 | 5 | 7 | 1 | | 19.6 |
| *C. czerskii* | 8 | | | | 8 | | 8.0 | 8 | | | | | 5 | 2 | 1 | 20.5 |

| | Pectoral rays | | | | | | | Anal rays | | | | | | | | Vertebrae | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | 12 | 13 | 14 | 15 | 16 | 17 | mean | N | 12 | 13 | 14 | 15 | 16 | 17 | mean | N | 33 | 34 | 35 | 36 | 37 | 38 | 39 | mean |
| 21 | | 21* | | | | | 13.0 | 21 | | | | 1 | 16 | 4* | 16.1 | 28 | | 2 | 18* | 1 | | | | 34.0 |
| 7 | 1 | 6 | | | | | 12.9 | 7 | | | 2 | 5 | | | 14.7 | 7 | | 4 | 3 | | | | | 34.4 |
| 32 | | 6 | 26 | | | | 13.8 | 32 | | | | 2 | 19 | 11 | 16.3 | 32 | | | | | 14 | 16 | 2 | 37.6 |
| 21 | 2 | 10 | 9 | | | | 13.3 | 21 | 1 | 1 | 9 | 9 | 1 | | 13.7 | 17 | 3 | 6 | 7 | 1 | | | | 34.4 |
| 14 | | 9 | 5 | | | | 13.4 | 14 | | 1 | 3 | 10 | | | 14.6 | 14 | 2 | 3 | 7 | 2 | | | | 34.6 |
| 8 | | | | 2 | 5 | 1 | 15.9 | 8 | | | | 1 | 6 | 1 | 16.0 | 4 | | | | | 2 | 2 | | 37.5 |

| | Inner gill rakers of 1st gill arch | | | | | | | | Outer gill rakers of 1st gill arch | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | 4 | 5 | 6 | 7 | 8 | 9 | mean | N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | mean |
| | 21 | | 6* | 8 | 7 | | | 6.1 | 21 | | 1 | 10 | 8* | 2 | | | | 2.6 |
| | 6 | | | 5 | 1 | | | 6.2 | 6 | | | 2 | 2 | 2 | | | | 3.0 |
| | 31 | | 1 | | 4 | 18 | 8 | 8.0 | 31 | | | | 2 | 13 | 6 | 9 | 1 | 4.8 |
| | 21 | 4 | 12 | 5 | | | | 5.0 | 21 | 3 | 3 | 3 | 3 | 7 | 2 | | | 2.7 |
| | 14 | | 7 | 4 | 3 | | | 5.7 | 14 | | 1 | 4 | 6 | 3 | | | | 2.8 |
| | 8 | | 2 | 2 | 3 | 1 | | 6.4 | 8 | | | 1 | 5 | 2 | | | | 3.1 |

* Including holotype.

on pectoral axilla. Lateral line extending along dorsal profile of body, curved downward below end of second dorsal fin, continuing to base of caudal fin along body axis.

First dorsal fin originating slightly posterior to and above upper end of gill opening; basal length 43.5% (37.8–61.8%) of length of second dorsal fin base; 6th (4th–6th) spine longest, its length 39.4% (43.6–64.2%) of fin base. Second dorsal fin originating just behind first dorsal fin; 7th (5th–11th) ray longest, its length 31.1% (27.4–41.5%) of fin base. Last ray of second dorsal fin broadly connected with caudal peduncle by terminal membrane. Anal fin originating below base of 3rd ray of second dorsal fin; basal length 75.7% (58.2–104.3%) of length of second dorsal fin base; 11th (5th–11th) ray longest, its length 45.3% (34.9–58.5%) of fin base. Pectoral fin large, rounded; 7th (6th–7th) ray longest; distal tip of adpressed fin above origin of anal fin; lower 7 rays thickened. Pelvic fin extending posteriorly to anus (not in females and immatures); 4th (2nd–4th) ray longest (when 4th ray not longest, its length more than 61% of that of longest ray); proximal part of inner ray narrowly connected with belly by small dermal membrane. Caudal fin slightly rounded, length 68.2% (66.8–92.0%) of head length; its 12 rays supported by hypural plate, among them uppermost ray and lower 2 rays not branched; 8 (7–10) upper and 5 (4–7) lower procurrent rays. Soft rays of all fins except for middle rays of caudal fin unbranched. Distance between anus and anal fin origin about equal to suborbital width. Urogenital papilla of male rudimentary.

*Coloration in fresh specimens.* Ground color of body varied: pale brown or grayish brown dorsolaterally, yellowish white ventrally. Five indistinct dark brown bands on body; small black spots and broad, greenish-white, roundish marks scattered dorsolaterally. Broad, dark brown band behind interorbital space. Two dark brown bands through eye to cheek. First dorsal fin blackish except for distal margin (almost translucent in females and immatures), with 2 black spots on front and rear parts. Second dorsal fin brownish with indistinct dark brown bands and small black spots on proximal parts of rays. Anal fin with indistinct pale brown bands. Pectoral fin rays with 6 (4–6) dark brown bands, fin membrane almost translucent. Pelvic fin bright yellow with white roundish marks bordered with blackish line (pale yellow with dark brown bands in females and immatures). Caudal fin pale brown, upper and lower parts orange-colored with indistinct dark bands.

**Distribution.** *Cottus koreanus* is known only from the Korean Peninsula (Fig. 4): upper reaches of the Han River system, Wonsan; Amlok (=Yalu) River (Mori 1928), Tumen River, Chongchon River, Taedong River (Chyung 1977); Imjin River, Kum River, Somjin River, Samchokosipchon River (Jeon 1987).

**Etymology.** The specific name *koreanus* refers to the Korean Peninsula, where the present species occurs in several rivers.

**Comparison.** In the genus *Cottus*, the following eight species and two subspecies have been known from the Asian Far-east region including the Korean Peninsula: *C. amblystomopsis* Schmidt, 1904, *C. czerskii*, *C. hangiongensis*, *C. kazika* Jordan and Starks, 1904, *C. nozawae* Snyder, 1911, *C. poecilopus poecilopus*, *C. poecilopus volki*, *C. pollux* Günther, 1873, and *C. reinii* Hilgendorf, 1879 (Berg 1949; Kim and Youn 1992; Nakabo 1993). In addition, *C. pollux* contains three ecological and genetic forms referred to as the large egg type, medium egg type, and small egg type (Goto 1995).

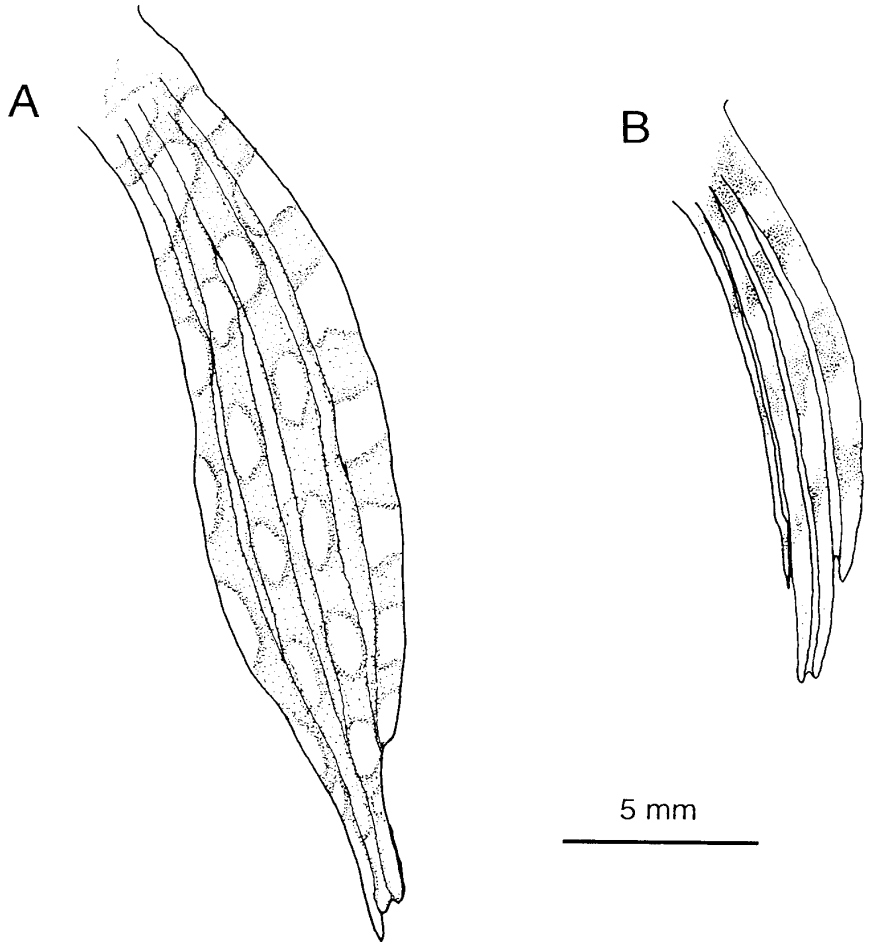


Fig. 3. Ventral views of left pelvic fin of *Cottus koreanus* sp. nov. A, Male (holotype, HUMZ 155725); B, female (paratype, HUMZ 155722).

Although it has been known that the present species inhabits Korea, *Cottus koreanus* has been recorded under the name *C. poecilopus* (or its incorrect subsequent spelling *C. poecilopterus*) because they share similar fin counts (Mori 1928; Mori and Uchida 1934; Okada 1938; Mori 1952; Matsubara 1955; Chyung 1977; Jeon 1987; Kim and Youn 1992; Byeon *et al.* 1995). *Cottus poecilopus* had been synonymized with *C. minutus* Pallas, 1769 by Gratzianow (1907), and subdivided into two subspecies, *C. m. minutus* and *C. m. volki*, by Taranetz (1933). After that, Taranetz (1937) recognized these two subspecies as *C. p. poecilopus* and *C. p. volki*. But *C. koreanus* differs from *C. p. poecilopus* in having a long innermost pelvic fin ray, its length more than 60% that of the longest ray (less than 50% in *C. p. poecilopus*), and from *C. p. volki* in lacking palatine teeth. Moreover, *C. koreanus* is clearly distinguished from both subspecies of *C. poecilopus* in having unique white marks on the pelvic fins in males.

Among the Far-east Asian species, *C. koreanus* differs from *C. kazika* and *C. czerskii* in the absence of palatine teeth, from *C. pollux* and *C. reinii* in having bands or spots on the pelvic fin, and from *C. amblystomopsis* and *C. nozawae* in having no branched rays on the pectoral fin. Although it is somewhat similar to *C. hangion-*

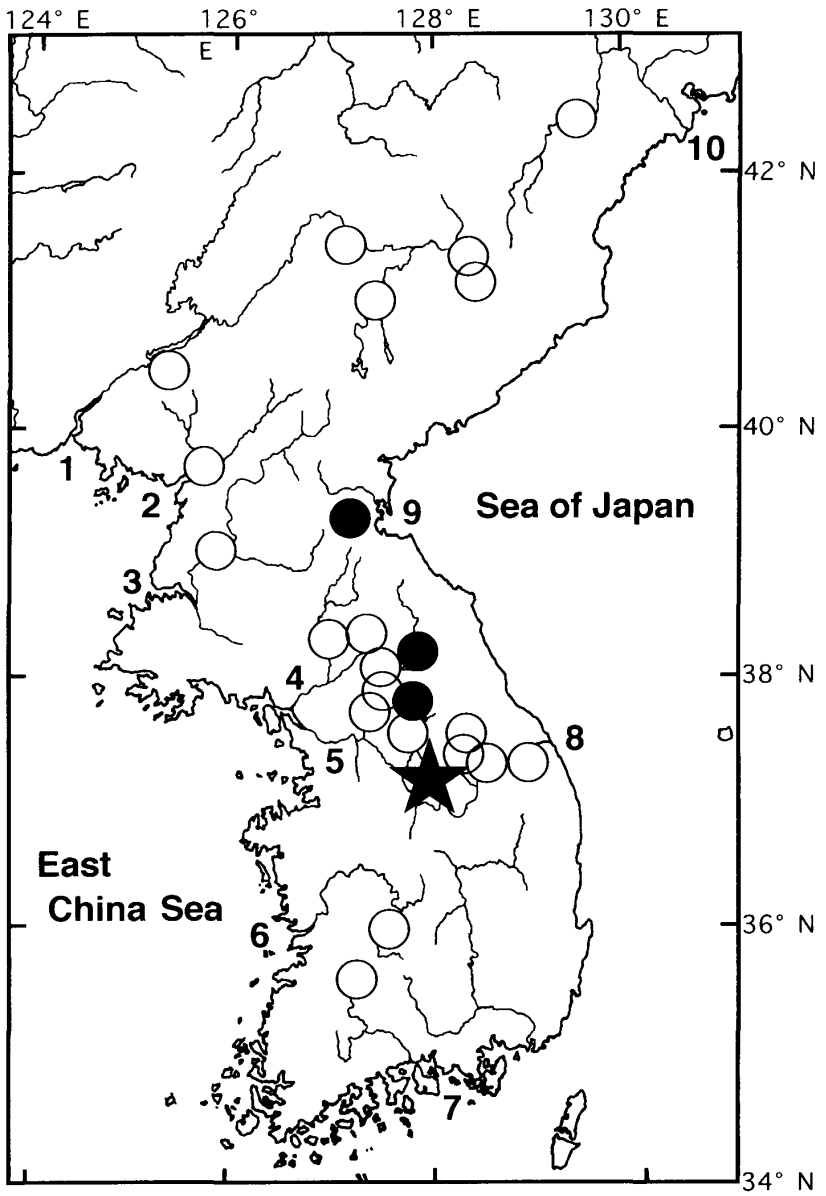


Fig. 4. Geographic distribution of *Cottus koreanus* sp. nov. ★, Type locality; ●, recognized in this study; ○, reported by Mori (1928), Chyung (1977), and Jeon (1987). 1, Amlok River; 2, Chongchon R.; 3, Taedong R.; 4, Imjin R.; 5, Han R.; 6, Kum R.; 7, Somjin R.; 8, Samchokosipchon R.; 9, Wonsan; 10, Tumen R.

*gensis* in sharing five indistinct dark brown bands on the body and greenish-white, roundish marks scattered dorsolaterally, *C. koreanus* differs from the latter in having 18–21 rays in the second dorsal fin (19–22 in *C. hangiongensis*), 14–17 rays on the anal fin (15–17 in *C. hangiongensis*), 12–13 rays on the pectoral fin (13–14 in *C. hangiongensis*), 34–36 vertebrae (37–39 in *C. hangiongensis*), and unique white marks on the pelvic fin in mature males (no marks on pelvic fins even in males in *C. hangiongensis*). *Cottus koreanus* is further distinguished from European and North American species by the combination of features noted in the diagnosis of this

species.

**Remarks.** Mori (1936) reported *Cottus shiragiensis* from southern Korea, but this is an unavailable name because it is only listed without any description or definition and is thus *nomen nudum* (International Commission on Zoological Nomenclature 1999, Art. 13.1).

**Comparative materials.** *Cottus hangiongensis*. Thirty-two specimens: HUMZ 164206–164207, 2 females, 92.3–95.1 mm SL, Kunashir Is., hot spring river, 17 August 1999; HUMZ 155724, 155746–155753, 2 males and 7 sex unknown, 54.8–85.7 mm SL, Maup R., Maengbang-ri, Kunduck-myon, Samchock-gun, Kangwon-do, Korea, 27 September 1998; HUMZ 155723, 155742–155745, 2 females and 3 sex unknown, 49.4–73.4 mm SL, Yeonkok R., Toekok-ri, Yeonkok-myon, Myongju-gun, Kangwon-do, Korea, 27 September 1998; HUMZ 144846–144847, male and female, 68.4–81.0 mm SL, Kuji R., Kuji City, Iwate Pref., Japan, 8 September 1996; HUMZ 150480–150481, female and sex unknown, 45.7–70.3 mm SL, Shiribetsu R., Rankoshi Town, Hokkaido, Japan, 2 August 1997; HUMZ 146907–146909, 3 females, 69.3–93.5 mm SL, Kawabukuro R., Kisakata Town, Akita Pref., Japan, 24 April 1997; HUMZ 145620–145622, 2 males and female, 85.4–133.2 mm SL, Osawa R., Matsumae Town, Hokkaido, Japan, 16 March 1997; NSMT-P 1824 (n=6), 2 males, 2 females, and 2 sex unknown, 48.9–105.8 mm SL, Kurobe R., Ikuji, Kurobe City, Toyama Pref., Japan, 30 September 1967.

*Cottus poecilopus poecilopus*. Syntypes, 6 specimens: NMW 6424 (n=1), 6729 (n=3), 78816 (n=2), 6 males, 80.9–96.9 mm SL, "Hungary, Mountain river at Großschlagendorf" (currently, Amur mountain brooks of Carpathians at Großschlagendorf near Kaesnark in Slovakia), 3 February 1837. Other specimens, 15 specimens: ZMB 7107 (n=1, syntype of *C. szanaga* Dybowski, 1869), female, 83.9 mm SL, "Fluß Onon, Dauria (Amur-System, UdSSR, *ca*. 51–42N, 115–50E)" (currently, Onon R., Amur R. system, Russia), date unknown; HUMZ 164189–164190, 2 males, 46.3–68.4 mm SL, Dnestr R., Ukraine, 1995; ZISP 14655, female, 80.8 mm SL, mouth of Amur R., brackish area, Russia, 12 May 1908; ZISP 14670 (n=5), male, female, and 3 sex unknown, 36.2–81.6 mm SL, Praure R., mouth of Amur R., Russia, 15 May 1908; ZISP 16238 (n=3), 3 males, 62.0–94.0 mm SL, Sihodun R., Manchuria, 15 July 1913; CAS 27896 (n=2), female and sex unknown, 57.0–91.6 mm SL, Mordova R., between Fundul-Moldovei and Cimpulung-Moldovensc, Romania, July 1967; CAS 39389, sex unknown, 87.0 mm SL, Mordova R., at Fundul-Moldovei, Romania, 6 September 1968.

*Cottus poecilopus volki*. Syntype ("Cotype"), 1 specimen: ZISP 25410, male, 99.6 mm SL, "River Thukun, east Sihote-Aline" (currently, Thukun R., Primorskii, Russia), 2 July 1930(?). Other specimens, 13 specimens: ZISP 24565 (n=2), male and female, 78.9–95.9 mm SL, Suchan R., near Tigrovaya bridge, Primorskii, Russia, 10 June 1927; HUMZ 150806–150808, 156808–156813, male, 2 females, and 6 sex unknown, 32.2–69.2 mm SL, Olga Bay (small river), Primorskii, Russia, 19 August 1994; HUMZ 162493–162494, 2 sex unknown, 50.7–58.4 mm SL, Mramornaya Inlet, Olga, Primorskii, Russia, 20 August 1994.

*Cottus czerskii*. Holotype: ZISP 15853, 88.5 mm SL, female, "Sedanka R., near Vladiovostok, Primorskii", Russia, 3 August 1912. Other specimens, 7 specimens: ZISP 18959 (n=3, syntypes of *C. paltschevskii* Schmidt, 1916), male and 2 females, 121.8–165.6 mm SL, "Sakhobe R., Trans-Ussuri District", Russia, 19 August 1906; ZISP 18547 (n=3), 3 sex unknown, 29.5–30.6 mm SL, Tumeniskaya R., Primorskii,

Russia, 5 July 1913; CAS 134785, female, 175.8 mm SL, Hoi Ryong, Korea, 21 May 1911.

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